

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

Assignee:	Primarion Corporation	Docket No.:	10057.2800
Serial No.:	10/029,709	Inventor:	Tang, et al.
Filing Date:	20 December 2001	Examiner:	Young Toi Tse
TITLE:	PLL/DLL DUAL LOOP DATA SYNCHRONIZATION UTILIZING A GRANULAR FIFO FILL LEVEL INDICATOR	Art Unit:	2611

OK TO ENTER: /YT/

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AMENDMENT PURSUANT TO 37 C.F.R. 1.312

Mail Stop Issue Fee
Commissioner for Patents
P.O. Box 1450
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Commissioner:

Please amend the captioned application as indicated below.

Amendments to Specification begin on page 2 of this paper.

Remarks begin on page 4 of this paper.

AMENDMENTS TO THE SPECIFICATION

Please replace the title as follows:

PLL/DLL DUAL LOOP DATA SYNCHRONIZATION ~~UTILIZING~~ UTILIZING A GRANULAR FIFO FILL LEVEL INDICATOR

Please replace paragraph [0033] with the following amended paragraph.

[0033] Serializer system **500** included a PLL **502** and a DLL **504** in a dual loop configuration. In one particular embodiment, ~~DLL 504~~ PLL 502 is embedded within ~~PLL 502~~ DLL 504; however, in other embodiments, the DLL and PLL may be separated. PLL **502** includes a phase frequency detector (PFD) **510**, a loop filter **512**, a VCO **514**, and a phase shifter **516**. DLL **504** also includes a phase detector **518** and a digital loop filter **520**. In addition, serializer system **500** includes a FIFO buffer **522** (first-in first-out) and a PISO (parallel-in serial-out) serializer **524**.

Please replace paragraph [0051] with the following amended paragraph.

[0051] **FIG. 8** illustrates an exemplary block diagram of a granular FIFO fill level indicator system **800**. FIFO fill level indicator system **800** is configured to facilitate the obtaining of a linear phase detector transfer function, which is highly desirable. Exemplary granular FIFO fill level indicator system **800** includes a write counter **802**, a plurality of FIFO registers **804**, a read counter **806**, and a comparison module **808**.

Comparison module **808** can comprise various devices and components for performing comparing functions, such as subtraction. In this particular embodiment, granular FIFO fill level indicator system **800** uses comparison module **808** to determine a difference between a state in write counter **802** and a state in read counter **806**. The difference is output from comparison module **808**, which performs the difference function, and represents the fill level of FIFO registers **804**. There may exist some difficulty in a direct implementation of FIFO fill level indicator system **800** because counters **802**, ~~**804**~~ **806** are generally asynchronous. In other words, the write clock and the read clock are not synchronized so the inputs received from counters **802** and **806** are generally not equally timed. Accordingly, the techniques to follow describe various embodiments for implementing a FIFO fill level indicator system **800** for data synchronization having asynchronous read and write clocks.

REMARKS

Please amend the application as indicated above. If there are any questions or concerns, please contact the undersigned at the telephone number indicated below.

Respectfully submitted,

Date: 07 MAR 08



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